UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,539	12/27/2001	Sang Jun Choi	K-0368	9460

34610 7590 04/30/2008

KED & ASSOCIATES, LLP
P.O. Box 221200
Chantilly, VA 20153-1200

EXAMINER	
WONG, WARNER	
ART UNIT	PAPER NUMBER
2616	
MAIL DATE	DELIVERY MODE
04/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/026,539	CHOI, SANG JUN	
	Examiner	Art Unit	
	WARNER WONG	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-16 and 18-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-16 and 18-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3, 5-6, 8-13, 15-16, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of Kawakami (US 2003/0156569) and Song (US 6,621,821).

Regarding claims 1 and 11, Petersen describes a network for transmitting asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells), suggesting:

an AAL2 transmitter (fig. 7A, Tx/Rx #42-35) that generates AAL cells (i.e. fig. 7A, AAL2' cells (AAL cells) from Tx/Rx #42-35 (AAL2 transmitter) towards the BSC) by combining N AAL packets , comprising (generated by adding) an AAL packet header to every (ith) data subset of an original user data set (fig.**6B**, each AAL2' cell has a header 122 & a combined set of AAL2 packets [ith user data subset] received from a mobile user 48), the AAL transmitter residing in a channel card (fig. 7, Tx/Rx card 42-35 (channel card) transmits AAL2' (AAL) cells), the channel card further comprising an AAL receiver and a CPU(fig. 5 & 7, Tx/Rx card 42-35 (channel card) receives AAL2' (AAL) cells and has a controller 42-33);

an AAL receiver (fig. 7A, CHU #42-32) that receive one or more AAL cells (comprising user data) generated by the AAL transmitter and restores the original user data set by of N AAL packets included in the one or more AAL cells (col. 11, lines 23-26, where CHU terminates AAL2 link and fig. 11, ATM demultiplexing #260 & AAL2' mapping 262).

an AAL2 transmitter (fig. 7A, CHU #42-32) that receives the restored original user data set from the AAL receiver and generates AAL2 cells (col. 3, lines 21-25 and fig. 11, where AAL2 is sent to FIFO #252) by multiplexing M common part sublayer (CPS) packets (fig. 3), which comprises (generated by adding) a CPS packet header to a jth data subset of the restored original user data set (payload) (fig. 3, AAL2 CPS packet comprising CPS-packet header and payload).

Peterson describes an AAL2 processor (fig. 11, CHU board processor 200) which processes the reception of AAL2' (AAL) cells incoming from the Tx/Rx cards and the transmission of AAL2 cells outgoing towards the RNC/BSC), but fails to explicitly describe:

the AAL receiver residing in an AAL2 processor, and the AAL2 transmitter residing in the AAL2 processor.

However, it would have been obvious to one with ordinary skill in the art at the time of invention by applicant to describe that the AAL receiver and the AAL2 transmitter to be inside the AAL2 processor/controller instead of outside the processor/controller which processes such transmission. It is held that there would be no invention in shifting the parts representing the AAL2 receiver and AAL transmitter to

a position immediately inside the AAL2 processor since the operation of the device would not thereby be modified (In re Japikse, 86 USPQ 70 (CCPA 1950)).

Peterson fails to explicitly describe:

multiplexing of CPS into single ATM cells for transmission.

Kawakami describes:

multiplexing individual user packets in AAL2 CPS formats into single ATM cells for transmission at the Base Station 3 (para. 90 in reference to fig. 12 & system fig. 1).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to describe multiplexing individual user packets into single ATM cells for transmission as in Kawakami for the ATM cell transmission of Peterson.

The motivation for combining the teachings is that it provides an more efficient forwarding of data using a low transmission rate (Kawakami, para. 16).

Peterson also fails to explicitly describe: a start of packet field to indicate a starting location of the AAL packet.

Song suggests: start of packet field to indicate a starting location of the AAL2 packet (col. 2, lines 19-21, detecting start position of each conventional AAL2 packet The examiner hereby cite by not used as a reference Lee, US 6,829,241, where his prior art describes conventional use of AAL2's “start field” to identify individual CPS-packet's boundary in a mobile communication system, fig. 3 & col. 2, lines 12-17).

Song also describes:

receiving incoming cells at the input, such incoming packets from multiple channels (i.e. sources) to be switched to the identical ATM connection will be

multiplexed into single ATM connections (fig. 2, col. 1, line 67 - col. 2, line 1, col. 2, lines 17-20, 29-32 as well as fig. 6 + col. 7, lines 58-63), and

IAM formatter 130 (transmitter) for receiving the AAL2 format ATM cells and formatting into an IATM cell for further transmission (col. 9, lines 12-15).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to perform the detail ATM AAL2 breakdown processing for incoming ATM cells as in Song for the combined teachings of Peterson and Kawakami.

The motivation for combining the teachings is it reduces the loss of transmission bandwidth due to incoming ATM cell each having a short length (Song, col. 2, lines 1-7).

Regarding claims 2 and 12, Petersen describes all limitations set forth in claims 1 and 11 respectively. Petersen further describes: the AAL packet header includes a sequence number of the ith data subset (fig. 3A, where SN = sequence number of the AAL2 data).

Regarding claims 3 and 13, Petersen describes all limitations set forth in claims 2 and 12 respectively. Petersen further describes: the AAL packet header further includes a routing tag field that identifies the original user data set and a length indicator field (LI) that indicates the length of the ith data subset (fig. 2, Channel ID CID and LI are the routing tag field and the Length Indicator respectively of the AAL2 data).

Regarding claims 5 and 15, Petersen describes all limitations set forth in claims 1 and 11 respectively. Petersen further describes: each of AAL cell includes an ATM header and a Start of Packet field, which indicates a starting location of an ith AAL

packet. (fig. 3A, a header where the start field resides, "The start field 24, shown in FIG. 3A, facilitates one AAL2 packet bridging two ATM cells.", col. 2, 27-28).

Regarding claims 6 and 16, Petersen describes a network for receiving asynchronous transfer mode (ATM) adaptation layer-2 (AAL2) type ATM cells (AAL2 cells), comprising:

an AAL2 receiver (fig. 7A, CHU #42-32) that receives AAL2 cells (col. 11, lines 24-26 and fig. 7A, where CHU terminates the AAL2 ATM-VCC coming from the BSC), containing common part sublayer (CPS) packets corresponding to an original user data set (fig. 2, where cells contained AAL2-CPS packets), and restores the original user data set of the CPS packets (col. 3, lines 17-21, fig. 11 #260 & #268, fig. 13B, #13B-13 and fig. 13F, #13F-12);

an AAL transmitter (fig. 7A, CHU #42-32) that receives the restored original user data set from the AAL2 receiver and generates AAL cells (fig. 13F, #13F-16 generating AAL2' cells to Tx/Rx cards 42-35) by multiplexing N AAL packets (fig. 4, where ATM_H header is added/multiplexed with the AAL2 packet #26[4-1] and padding to become an AAL2' cell), generated by adding an AAL packet header to an ith data subset of the restored original user data set, wherein i and N are positive integers and $1 < i < N$ (fig. 4, where AAL packet header is AAL2_H and ith data subset is AAL2 payload);

an AAL receiver that receives the one or more AAL cells from the AAL transmitter and restores the original user data set of the N AAL packets (fig. 5, Tx/Rx card 42-35 receives AAL2' cells (fig. 6B) from RNC and inherently

disseminates (demultiplexes) each AAL packet in order to forward the packet to the correct mobile user according to the channel ID in the packet header, col. 2, lines 8-10, col. 8, lines 21-22 & 30-33), the AAL receiver residing in a selector (fig. 7, Tx/Rx card 42-35 (selector) receives AAL2' (AAL) cells), the selector further comprising a second AAL transmitter and a CPU (fig. 5 & 7, Tx/Rx card 42-35 (selector) also transmits AAL2' (AAL) cells and a controller (CPU)).

Peterson describes an AAL2 processor (fig. 11, CHU board processor 200) which processes the reception of AAL2' (AAL) cells incoming from the Tx/Rx cards and the transmission of AAL2 cells outgoing towards the RNC/BSC), but fails to explicitly describe:

the AAL receiver residing in an AAL2 processor, and the AAL2 transmitter residing in the AAL2 processor.

However, it would have been obvious to one with ordinary skill in the art at the time of invention by applicant to describe that the AAL receiver and the AAL2 transmitter to be inside the AAL2 processor/controller instead of outside the processor/controller which processes such transmission. It is held that there would be no invention in shifting the parts representing the AAL2 receiver and AAL transmitter to a position immediately inside the AAL2 processor since the operation of the device would not thereby be modified (In re Japikse, 86 USPQ 70 (CCPA 1950)).

Peterson fails to explicitly describe:

de-multiplexing of CPS into single ATM cells from transmission.

Kawakami describes:

multiplexing individual user packets in AAL2 CPS formats into single ATM cells for transmission at the Base Station 3 (para. 90 in reference to fig. 12 & system fig. 1), where de-multiplexing after multiplexing is obvious.

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to describe multiplexing individual user packets into single ATM cells for transmission as in Kawakami for the ATM cell transmission of Peterson.

The motivation for combining the teachings is that it provides an more efficient forwarding of data using a low transmission rate (Kawakami, para. 16).

Peterson also fails to explicitly describe: a start of packet field to indicate a starting location of the AAL packet.

Song suggests: start of packet field to indicate a starting location of the AAL2 packet (col. 2, lines 19-21, detecting start position of each conventional AAL2 packet The examiner hereby cite by not used as a reference Lee, US 6,829,241, where his prior art describes conventional use of AAL2's “start field” to identify individual CPS-packet's boundary in a mobile communication system, fig. 3 & col. 2, lines 12-17).

Song also describes:

receiving incoming cells at the input, such incoming packets from multiple channels (i.e. sources) to be switched to the identical ATM connection will be multiplexed into single ATM connections (fig. 2, col. 1, line 67 - col. 2, line 1, col. 2, lines 17-20, 29-32 as well as fig. 6 + col. 7, lines 58-63), and

IAM formatter 130 (transmitter) for receiving the AAL2 format ATM cells and formatting into an IATM cell for further transmission (col. 9, lines 12-15), where de-multiplexing after above multiplexing is obvious.

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to perform the detail ATM AAL2 breakdown processing for incoming ATM cells as in Song for the combined teachings of Peterson and Kawakami.

The motivation for combining the teachings is it reduces the loss of transmission bandwidth due to incoming ATM cell each having a short length (Song, col. 2, lines 1-7).

Regarding claims 8 and 18, Petersen describes all limitations set forth in claim 6 and 16. Petersen further describes: the AAL packet header includes a sequence number of the ith data subset (fig. 3A, where SN = sequence number of the AAL2 data), a routing tag field identifying the original user data set (fig. 2, Channel ID CID is the routing tag field in respect to the AAL2 data) and a length indicator field indicating the length of the ith data subset (fig. 2, LI is the Length Indicator in respect to the AAL2 data).

Regarding claims 10 and 20, Petersen describes all limitations set forth in claims 6 and 16 respectively. Petersen further describes: each of AAL cell includes an ATM header and a Start of Packet field, which indicates a starting location of an ith AAL packet. (fig. 3A, a header where the start field resides, “The start field 24, shown in FIG. 3A, facilitates one AAL2 packet bridging two ATM cells.”, col. 2, 27-28).

Regarding claim 21, Petersen describes all limitations set forth in claim 1. It is inherent that Petersen further describes: i, j, N, and M are positive integers, $1 < i < N$,

and 1 < j < M, where i and j are variables to the N segmented AAL packets and M segmented AAL2 packets.

2. Claims 4 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen in view of Kawakami and Song, and further in view of Strawczynski (6,628,641).

Regarding claims 4 and 14, Petersen describes all limitations set forth in claims 3 and 13 respectively. Petersen lacks what Strawczynski describes: the AAL packet (cell) header further includes a C-FLAG field (PTI) that may indicate whether the payload (ith data subset) represents the last cell of the frame (Nth data subset of the original user data set) (col. 7, lines 62-65).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to specify that the PTI field may be used to indicate if the transmitted cell/packet is the last cell/packet for a frame of user data. The motivation being that should the receiver decides that the entire frame is irrecoverable during the transmission processes, the receiver may still detect and process the final cell containing important information (Strawczynski, col. 8, lines 2-10).

Response to Arguments

3. Applicant's arguments with respect to claims 1-6, 8-16 and18-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Choi (US 2001/0030966) describing ATM cell transmitting/receiving device, Kim (US 6,594,266) describing method of routing ATM cell, Lee (US 6,829,241) describing AAL2 processing apparatus in mobile communication system,

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WARNER WONG whose telephone number is (571)272-8197. The examiner can normally be reached on 6:30AM - 3:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Warner Wong
Examiner
Art Unit 2616

/W. W./
Examiner, Art Unit 2616

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2616